

**D. Materials Warranty**

General Provisions 101 through 150.

**840.2.04 Corrugated Aluminum Alloy Structural Plate for Pipe, Pipe Arches, and Arches****A. Requirements**

Use corrugated aluminum alloy structural plate for pipe, pipe arches, and arches that meet the requirements of AASHTO M 219M.

**B. Fabrication**

General Provisions 101 through 150.

**C. Acceptance**

General Provisions 101 through 150.

**D. Materials Warranty**

General Provisions 101 through 150.

**Section 841—Iron Pipe****841.1 General Description**

This section includes the requirements for iron pipe, including cast iron soil pipe and fittings, and ductile iron pipe and appurtenances.

**841.1.01 Related References****A. Standard Specifications**

Section 106—Control of Materials

Section 848—Pipe Appurtenances

**B. Referenced Documents**

ASTM A 74

ASTM B 29

ASTM C 564

ANSI/AWWA A 21.4

ANSI/AWWA A 21.10

ANSI/AWWA A 21.11

ANSI/AWWA A 21.50

ANSI/AWWA A 21.51

**841.2 Materials**

For each item in this Section, submit a certification from the manufacturer as per the requirements in Subsection 106.05, “Materials Certification.”

Include the chemical and physical properties of the materials and their conformance with this Specification on the certification.

**841.2.01 Cast Iron Soil Pipe and Fittings****A. Requirements****1. Type**

Use cast iron soil pipe and fittings that meet the requirements of ASTM A 74, including the inside and outside coatings.

## 841.2.02

- a. Rubber Gasket Joints: Use rubber gasket joints for cast iron soil pipes that meet the requirements of ASTM C 564.
- b. Lead Joints: Use refined lead that meets the requirements of ASTM B 29. Do not use reclaimed lead.
- c. Plain End Cast Iron Soil Pipe: Plain end cast iron soil pipe may be joined with steel bolted couplings if they meet the requirements of Subsection 848.2.02.

### **B. Fabrication**

General Provisions 101 through 150.

### **C. Acceptance**

The Department accepts material that is properly certified by the manufacturer.

### **D. Materials Warranty**

General Provisions 101 through 150.

## **841.2.02 Ductile Iron Pipe and Appurtenances**

### **A. Requirements**

Use ductile iron pipe that meets the requirements of ANSI/AWWA A 21.50 and A 21.51 for the class and joint specified.

#### **1. Fittings**

Use fittings that meet the requirements of ANSI/AWWA A 21.10 for the class and joint specified.

#### **2. Rubber Gasket Joints**

Use rubber gasket joints that meet the requirements of ANSI/AWWA A 21.11.

#### **3. Flanges**

Use flanges that meet the requirements of ANSI/AWWA A 21.11.

#### **4. Plain End Ductile Iron Pipe**

Plain end ductile iron pipe may be joined with steel-bolted couplings if they meet the requirements of Subsection 848.2.02.

#### **5. Cement Mortar Linings**

Use cement mortar linings that meet the requirements of ANSI/AWWA A 21.4. Line all ductile iron pipe and fittings with cement mortar unless specified otherwise.

### **B. Fabrication**

General Provisions 101 through 150.

### **C. Acceptance**

The Department accepts material that is properly certified by the manufacturer.

### **D. Materials Warranty**

General Provisions 101 through 150.

## **Section 842—Clay Pipe**

### **842.1 General Description**

Specifications for this work will be included elsewhere in the Contract.

## **Section 843—Concrete Pipe**

### **843.1 General Description**

This section includes the requirements for reinforced concrete pipe, nonreinforced concrete pipe, and concrete underdrain pipe.